

Translating Transition: A case study on using transition theory to guide policy action on energy efficient buildings Dr Chris Riedy 28th June 2017



NSW Energy Efficiency Action Plan

Aims to transform the market for energy efficiency

- What does success look like?
- How do you know you are heading in the right direction?

ISF worked with the NSW Office of Environment and Heritage during 2016 to explore these question



NSW Energy Efficiency **Action Plan**

Research questions

- 1. How do the multiple energy efficiency markets interact with and influence one another? Is it possible to map these market systems to better understand how transformation might proceed in these systems?
- 2. What would a transformed set of energy efficiency markets look like? What is the future state that OEH is trying to achieve? What behaviours, practices and systems would be prevalent in these markets?
- 3. How is market transformation likely to proceed in the energy efficiency sector? What transitional phases might be expected and what would be the signals that these transitions are taking place?

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4. In light of the above, what are the best places to intervene to facilitate and monitor market transformation in the energy efficiency sector?



Conceptual framework: Transition studies

 Transition studies is an emerging field of research that draws together insights from systems thinking, complexity theory, innovation studies, sociology and environmental science to better understand large scale systemic change and ways to influence such change

"Transitions are a specific type of social change, which involves a fundamental change in structure (infrastructure, institutions, markets), culture (values and world view) and practices (behavioural norms and routines)" (Rotmans, J. and Loorbach 2010).





Research design

Stage	Key tasks	Purpose
1. Mapping the transition arena	 Desktop research Interviews with OEH teams and external experts System diagrams 	Foundational understanding of the space (RQ1)
2. Visions and pathways	 Constructing a vision from interviews and literature International interviews – success stories Literature on pathways and leverage points 	What is the end point? (RQ2) How can we get there? (~RQ3) How do we know we're heading in the right direction? (~RQ3)
3. Pathways and indicators (tentative)	 Interviews and focus groups to apply approach to specific sub- sectors 	What should we do in particular markets? (RQ3 and RQ4)

Situation Description

- 1. Define the regime
- 2. Describe the regime
- Actors
- Policies
- Production networks and industry structures
- Technology
- Research
- Socio-cultural
- User practices and markets
- 3. Identify relevant landscape pressures
- 4. Identify and characterise relevant niches

Landscape - big picture trends

Regime - business as usual

Niche - innovations

Guiding Intervention

- 1. Establish a transition team
- 2. Define the problem
- 3. Develop a vision of success
- 4. Undertake transition experiments
- 5. Monitor, evaluate and reassess



Situation description

Market Typologies



There is no single energy efficiency market

Market is a very specific thing. The market for LEDs competing with fluorescent troffers, for example, that's a market...lt's a very different market than LEDs competing with halogen downlights in houses, for example.

- Jon Jutsen, A2SE

The NSW residential building regime

Actors

- Incumbents: Volume builders (e.g. Meriton), niche builders, architects/designers, tradies, suppliers (e.g. Reece), developers (e.g. Stockland), banks, real estate agents
- Governance: Industry associations (e.g. HIA), local government, NSW Department of Planning and Environment, Urban Growth
- Challengers: Sustainable builders and designers, energy efficient product suppliers, some academics, OEH

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The NSW residential building regime

Policies

• BASIX, EEAP

Supply chains

• Next slide

Technology

- LED lighting, PV, batteries
 Socio-cultural
- Housing affordability, location

UTS:ISF INSTITUTE FOR SUSTAINABLE FUTURES

User practices and markets

Focus on supply, profit over liveability

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SUPPLY CHAIN: PRODUCTS

(Stakeholder Universe??)



Supply chain analysis If you look at the building industry, what I've seen time and time again is that builders have a network of *contractors they trust* and a network of suppliers they trust. If you've got a new product that is not coming through the traditional trusted supply chain, it will not be adopted by many people.

- Alan Pears

Landscape: drivers for and against energy efficiency

Society and culture	Technology	Environment	Economy	Politics and governance
Consistently high environmental concern	Ongoing technological improvement	Increased insulation demand due to climate change	Rising electricity and gas prices	Good policy foundation (e.g. building codes, ESS)
Lack of confidence in EE due to past program failures	Emergence of attractive EE products (e.g. smart metering)	Increased HVAC demand due to climate change	Price volatility (ROI less certain, but EE as risk management)	Energy and climate policy volatility and uncertainty
Not prominent in business culture	Big data and Internet infrastructure		Exchange rates	Lack of consistent national approach
Preference for solar (more visible)	Gas metering is immature		Perception that EE adds cost in manufacturing and construction	
Volatility in concern about climate change			Housing affordability (adds to upfront cost)	
			Financing for new technology	
			Lack of a secondary market	

Niches





Transition assessment

Niche maturity Dominant design?

 Powerwall is well known but there are competitive alternatives and multiple energy storage technologies

Support from powerful actors

• Origin Energy as a partner

Price/performance improvements

• Big improvement between Powerwall 1 and 2, further improvements expected

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Market share > 5%?

• Battery installations ~ 0.1% of the market



Transition pathways

Phase: Preparing for Change

 Lots of analysis and envisioning, network formation, niches emerging

Transition pathway: Reconfiguration

• Waves of landscape pressure, mature niches, incumbent actors adding on innovations that change the rules of the game

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Reconfiguration: niche adoption changes the structure of the regime

Time

Guiding intervention

Transition management

- 1. Establish a transition team
- 2. Problem structuring and establishment of a transition arena
- 3. Developing sustainability visions, pathways, and a transition agenda
- 4. The initiation and execution of transition experiments
- 5. Monitoring and evaluating the transition process



The transition management cycle (Rotmans and Loorbach, 2006, Loorbach, 2007)

Intervention tool Upscaling = grow membership of an initiative

Replicating = copy initiatives that work

Coupling =

- connect diverse initiatives and
- exploit synergies

Acceleration Mechanisms

Accelerating Transitions



Instrumentalising = use

governance mechanisms to bring initiatives to the mainstream in a viable way

Embedding = aligning old and new ways of doing, make the initiative normal

Acceleration Mechanisms

Accelerating Transitions



Conclusion

- The three-part transition tool does simplify application of transition theories for policy makers
- However, still requires a lot of detailed analysis at the level of a specific market to be useful
- Next step is to further test and refine the tool through detailed application to one or more markets

